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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,353	06/26/2003	Chang Ho No	6661-000010/US	3261
30593	7590	09/13/2006	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			TALBOT, BRIAN K	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 09/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/606,353

Applicant(s)

NO ET AL.

Examiner

Brian K. Talbot

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-4, 6-9 and 12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4, 6-9 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. The amendment filed 6/26/06 has been considered and entered. Claims 1,5,10,11 and 13 have been canceled. Claims 2-4,6-9 and 12 remain in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. In light of the amendment filed 6/26/06, the 35 USC 112,second paragraph rejection has been withdrawn.

***Claim Rejections - 35 USC § 103***

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2,6-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (5,989,653) in combination with Clarke et al. (4,869,930).

Chen et al. (5,989,653) teaches a process for metallization of a substrate by irradiative curing of a catalyst applied thereto. A catalyst solution is applied to a substrate. Metallic clusters are formed by irradiating the substrate. Electroless plating can then deposit on the metallic clusters. Additionally electrolytic coating can follow the electroless plating step (abstract). A mask can be used for selective exposure of the catalytic solution (col. 3, lines 5-20). The catalyst solution can be applied in a variety of ways including ink-jet printing (col. 4, lines 35-50). The electroless plating can be copper, gold, silver or nickel (col. 5, lines 20-35).

Chen et al. (5,989,653) fails to teach reducing or oxidizing to form the metal pattern.

Clarke et al. (4,869,930) teaches a method of preparing substrates for deposition of metal seed from organometallic vapor for subsequent electroless metallization. Clarke et al. (4,869,930) teaches applying an organometallic compound which includes M-metal, L-ligands and X-anions to a substrate. The organometallic material is physically, chemically or by other means decomposed to form a seed metal. The decomposing means includes heating in an oxygen atmosphere by irradiation, etc (col. 7, lines 5-65). Electroless deposition is followed to form the metal layer.

Therefore it would have been obvious for one skilled in the art to have modified Chen et al. (5,989,653) process by incorporating a treating step in reducing or oxidizing atmosphere with an organometallic compound as evidenced by Clarke et al. (4,869,930) with the expectation of achieving similar success.

Chen et al. (5,989,653) in combination with Clarke et al. (4,869,930) fail to teach “growing crystals”.

The references teach electroless and electroplating the metal film to form the pattern.

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Hence, it is the Examiner's position that the "growing crystals" would be inherent as the processes are the same and one would expect similar growth patterns to be obtained.

Claims 2,3,6-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over IBM Technical Disclosure Bulletin, Nov. 1989 or Hill et al. (5,534,312) in combination with Chen et al. (5,989,653) further in combination with Clarke et al. (4,869,930).

IBM Technical Disclosure Bulletin, Nov. 1989 teaches a method of forming wiring patterns and vias on a substrate. A thin uniform layer of an organo-metallic is deposited as a powder on the surface of the substrate. The desired wiring pattern is then developed in the powder layer by selective application of heat or a laser and the organo-metallic will decompose only where heat is applied forming adherent pattern of metal on the substrate. The unexposed organo-metallic layer is removed. The selective thermal decomposition is performed with a mask.

Hill et al. (5,534,312) teaches a method of directly depositing metal containing patterned films. A metal complex is applied to a substrate, irradiated with light through a mask to form treated selective areas (abstract, Fig. 1, col. 3, line 55 – col. 6, line 65).

IBM Technical Disclosure Bulletin, Nov. 1989 or Hill et al. (5,534,312) fail to teach electro or electrolessly coating the metal layer.

Features described above concerning with Chen et al. (5,989,653) are incorporated here.

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified with IBM Technical Disclosure Bulletin, Nov. 1989 or Hill et al. (5,534,312) process by performing a subsequent electroless plating step atop the formed metal

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layer as evidenced by Chen et al. (5,989,653) with the expectation of achieving a similar success as well as a desired thickness of the metal layer.

IBM Technical Disclosure Bulletin, Nov. 1989 or Hill et al. (5,534,312) in combination with Chen et al. (5,989,653) fail to teach the claimed organometallic composition.

Features described above concerning Clarke et al. (4,869,930) are incorporated here.

Therefore it would have been obvious for one skilled in the art to have modified IBM Technical Disclosure Bulletin, Nov. 1989 or Hill et al. (5,534,312) in combination with Chen et al. (5,989,653) process by substituting one well known organometallic compound for another as evidenced by Clarke et al. (4,869,930) with the expectation of achieving similar success, i.e. a catalytic pattern for subsequent plating.

### ***Response to Amendment***

6. Applicant's arguments filed 6/26/06 have been fully considered but they are not persuasive.

Applicant argued that Chen fails to teach an organometallic compound for the catalyst.

The Examiner agrees in part. However, the test of obviousness is not express suggestion of the claimed invention in any or all references but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965); *In re Hedges*, 783 F.2d 1038.

In this case, the secondary references (IBM Technical Disclosure Bulletin, Nov. 1989 or Hill et al. (5,534,312) or Clarke et al. (4,869,930)) all teach forming catalyst coatings with the

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use of organometallic compounds and hence it is the Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving similar success with the claimed organometallic compound catalyst as evidenced by the references.

Applicant argued that The IBM technical Disclosure teaches "building up the metal layer" by repeating the process and hence teaches away from subsequent electroless or electrolytic plating.

The Examiner agrees in part. While the IBM Disclosure teaches this fact, it is the Examiner's position that one skilled in the art would have had a reasonable expectation of achieving similar success by utilizing another "well known process" for building thickness of a wiring pattern utilizing a subsequent electroless or electrolytic process as evidenced by Chen et al. (5,989,653).

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Brian K Talbot  
Primary Examiner  
Art Unit 1762

BKT